



THE INSTITUTION OF
CIVIL ENGINEERS

PHEW NEWSLETTER

Panel for Historical Engineering Works

SEPTEMBER 2000 no.87

CONTENTS

Millennium Link Conference and Visit to the Forth & Clyde and Union Canals – July 2000

Closure of Brown Lenox

The Chairman's Column

Anderton Boat Lift Appeal

HEWs in the News

Record Form Update

Editor's Note

MILLENNIUM LINK CONFERENCE AND VISIT TO THE FORTH & CLYDE AND UNION CANALS – JULY 2000

by Sandra Purves

The £78 million Millennium Link Project to restore the Forth & Clyde and Union Canals to through navigation demonstrates how historical engineering and modern design can complement each other. On the weekend of 30 June – 2 July the Millennium Link Conference, initiated by ICE President Professor George Fleming was held in Edinburgh and attracted 280 delegates. It was followed by two days of visits to look at both the old and new works along the lengths of these canals. There were more than 30 permanent planned blockages in 110km of canal. The conference illustrated how peoples' attitudes to canals had changed from the days when these blockages had been perpetrated. The turning point came when those who believed in the potential of the canals managed to get the John Scott Russell aqueduct constructed over the Edinburgh City By-pass ensuring that the Union Canal might just be reconnected to the Capital city again.

The International Conference looked at not only engineering aspects but also socio-economic and environmental issues. Whilst there were papers dealing with purely the historical side of the canals, it was interesting to note that the skills and work of the original engineers and contractors and other past aspects were referred to by almost all speakers. The Scottish lowland canals were not the only ones covered, the conference included such diverse canals as the Panama, the Chesapeake and Ohio canal and the Shannon – Erne Waterway.



International Historic Civil Engineering Landmark Plaque for the Forth & Clyde Canal, presented 30 June 2000 in Edinburgh at the 'ICE/ASCE Millennium Link Conference on the Rehabilitation of the Forth & Clyde and Union Canals'

(left to right: Jim M Stirling, Director, Scotland - British Waterways, Glasgow; Delon Hampton, President, ASCE Washington, DC; George Fleming, President, ICE, University of Strathclyde; Roland Paxton, Chair, ICE PHEW, Edinburgh)

A total of 140 people visited the works, including delegates from the conference and participants in this year's annual PHEW summer outing. For the second time this century, Port Buchan in Broxburn was thronged with people. The first occasion was when British Waterways held a celebration to mark the completion of the four new bridges, which replaced blockages on the Union Canal. At least 2,000 locals turned out to see the flotilla of boats set off to sail under the M8 for the first time. This time, two groups of visitors met when a party, which had come by boat from Ratho, crossed paths with those joining the boats returning to Ratho after crossing Hugh Baird's Almond aqueduct. The sheer scale of the works impressed everyone. Hitherto, certainly in Scotland, restoration projects have generally been of small scale such as a bridge or a flight of locks.

Since the Forth & Clyde canal was dewatered in several places, there was an opportunity to get a closer

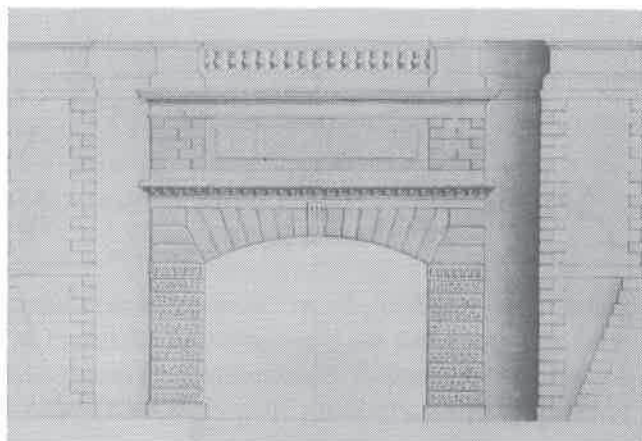
the group's Midlands works. Brown Lenox went out of the chainmaking business in some style, however, as the last major chain cable order fulfilled was for the *Queen Elizabeth II*.

Over the last twenty or so years the company was to change hands and lose much of its original buildings with the selling of land for a retail development. In 1994 the company had received grant aid towards a £1.8 million expansion, part of which included a new administration centre. It was to be a short lived expansion as in December 1999 it was announced that; 'Brown Lenox, the Pontypridd-based manufacturer of crushing equipment for stone quarries, is to close next year with the loss of 90 jobs, although some jobs will be transferred to other sites owned by parent company Terex.'

Currently the company is owned by the Terex Corporation, a diversified global manufacturer with headquarters in Westport, Connecticut, USA. A constituent of the Terex Earthmoving, Crushing and Screening Division, it forms part of BL Pegson Ltd in Great Britain (head office at Coalville in Leicestershire).

See also: A Link with the Past: the History of the Newbridge Works of Brown Lenox & Co., Pontypridd, *The Glamorgan Historian*, Vol. 12, 1981.

THE CHAIRMAN'S COLUMN by Professor Roland Paxton



Camelon Aqueduct – Smeaton drawing 1770.
Courtesy of The Royal Society
Photograph by Professor Paxton

Over the past few years the Panel has strongly supported the authentic conservation of many projects to the Heritage Lottery Commission and others. In canal regeneration alone the impact on ongoing work is impressive, e.g., the Huddersfield Narrow Canal

Tunnel, Anderton Boat Lift and the Forth & Clyde and Union Canals 'Millennium Link'. The latter project is conserving many Smeaton, Mackell, Whitworth and Baird structures. An exciting sight for me on the recent Panel visit was part of the long-forgotten c.1770 underpass on the old Edinburgh to Stirling road at Camelon revealed in the new lock excavation. The tunnel was used by Telford and Southey when travelling north in 1819, and described as 'so dangerously low that it might easily prove fatal to a traveller on the outside of a stage coach' (*Journal of a tour in Scotland*, 20). The tunnel, measuring 16ft wide and 11-13ft high (conforming to Smeaton's dimensions) was replaced by a bascule bridge, probably c.1830.



Camelon Underpass, c.1770 as seen in new lock excavation, July 2000
Photograph by Professor Paxton

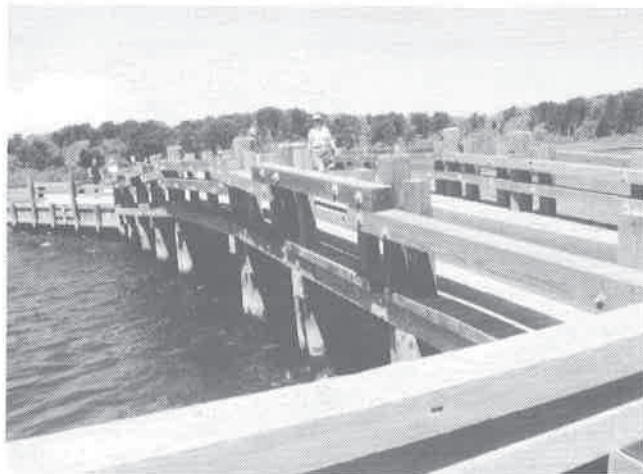
Delegates from the USA, known to the Panel, who presented papers at the recent 'Millennium Link' conference included, Dr Robert Kapsch, Professor Alan Prasuhn and Dr Jerry Rogers, Chair of ASCE's History and Heritage Committee. PHEW Scotland was delighted that Jerry and his wife Donna were able to attend the site visits (*NCE 10/17 August* refers) and dinner in Falkirk as their guests. I learned that ASCE is organising and now calling for papers for an 'Engineers in a Changing World' conference to be held in Houston from 9-14 October 2001 which will include a 'National Engineering History Congress' to be chaired jointly by Professor A J Fredrich and Dr Rogers.

During a recent visit to HEW's in the USA, a bridge, a lighthouse, and a mid-19th century former reservoir at Albany, New York State, now conserved as a sports stadium, impinged particularly on my awareness. The latter was pointed out to me by Dr Tom Carroll, Director of the fast-developing Burden Ironworks Museum at Troy which has just acquired a 19th century steam engine with 4-ton fly wheel! The other

structures are on Chappaquiddick Island, Martha's Vineyard, Massachusetts, for the visit to and details of which my cicerone was Ron Kasmouski, Ranger to the Trustees of Reservations on the island. The bridge over a creek, is of traditional timber type and was without parapets until after Edward Kennedy's notorious car accident. We then crossed over it in Mr Kasmouski's four-wheeled drive truck and after an informative drive over beaches, soft sand roads and rough ground, now all part of a wildlife refuge, we arrived safely at Cape Poge lighthouse.



19th century earth-banked reservoir conserved as Bleecker sports stadium, Albany, N Y State
 Photograph by Professor Paxton



8-span timber bridge, Chappaquiddick Island, Martha's Vineyard, Mass.
 Photograph by Professor Paxton

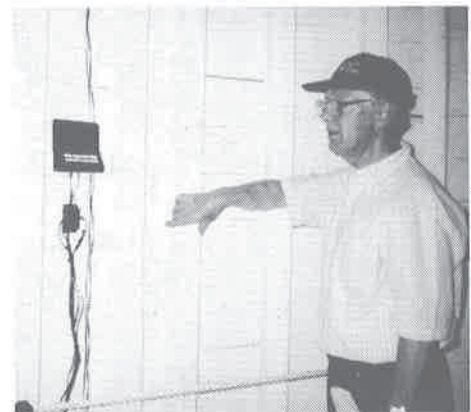
My fascination with Cape Poge lighthouse was that it has been relocated no less than seven times since 1801 because of coastal erosion. The simple but effective construction of the present 107-year-old conical lighthouse consists basically of 5"x5" vertical ribs with horizontal overlapping clapboard cladding. Its solar powered aerobeacon, is 65ft above water level and has a range of 9 miles. Other key facts about the

lighthouse, which is now maintained by the Trustees of Reservations under Coastguard supervision, are:

1801	Began operation – light source Spider lamp
1816-1817	Lighthouse renovated
1838	1 st relocation of the lighthouse
1844	New tower built – second relocation
1857	Fresnel lens (4 th order) installed
1893	Present tower built – third relocation
1907	Tower moved 50ft – fourth relocation
1922	Tower moved 95ft – fifth relocation
1943	Station (from c.1930 with electric light) automated
1960	Tower moved 150ft – sixth relocation
1968	Tower moved 500ft – seventh relocation



Cape Poge Lighthouse (1893), Martha's Vineyard, Mass.
 Photograph by Ann Paxton



Cape Poge Lighthouse (1893), interior
 Photograph by Ann Paxton

For the past decade the Panel has encouraged the production of numerous heritage trail leaflets by Local Associations and others as one of the best means of promoting civil engineering. I am delighted to close with **congratulations to all concerned** in the recent publication of no less than four excellent examples. These cover Telford in Dumfriesshire [2], the Forth bridges at Queensferry, and *Our River*, embracing the Thames from Westminster to Blackfriars and enjoyably walkable from ICE Headquarters. Copies of the first three can be obtained from PHEW Secretary, Claire Delgal (tel: 020 7665 2258), and *Our River* from Shona Cooper (tel: 020 7665 2150), ICE Public Relations.



Thomas Telford in *Dumfries and Galloway*
(organised by Mr Ken McCrae)
Copyright © Institution of Civil Engineers, 2000

HEW'S IN THE NEWS

by Brian George

Waterway World, March 2000, mentions the Leicester and Swannington Railway (HEW 1745) and in particular, an unusual vertical lifting bridge, devised by Robert Stevenson, which crossed the Soar Navigation at Soar Lane, Leicester. In the down position the railway lines became level and lined up with the track on either side of the bridge abutments, about four feet or so above the surface of the water. In the raised position the bridge decks amply cleared the tops of boats passing under it and conformed to the height of the other bridges in the area. The mechanism for causing the bridge to rise and fall consists of four hefty wooden columns with large cast-iron pulley wheels on the top. Heavy chains are attached to the four corners of the deck passing up to the wheels and down to large counter-weights.

Eventually British Railways found the bridge an embarrassment and decided in 1966 to move it to Leicester's new Museum of Technology at Abbey Pumping Station next to the river. It became badly vandalised in the grounds there so it was again moved to the Snibston Discovery Park, an old colliery site at Coalville where a specially constructed 'dry' canal section was prepared and it was refurbished in 1992 and re-erected.



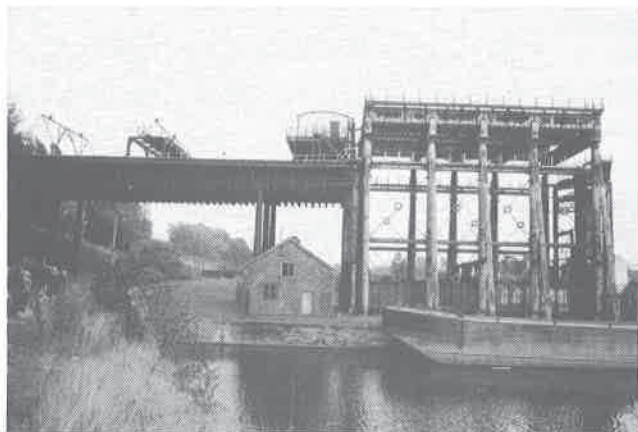
Sandwich Council have been awarded a £1,287,000 Heritage Lottery Fund grant towards the cost of a £2.2 million project to rejuvenate canalside areas within the Birmingham Canal Navigation (HEW 1182). Under the Community Lifeline Canal Project, led by Sandwich Council, 12 miles of canalside towing paths and adjacent buildings between Galton Valley, Smethwick and Tipton are to be upgraded or restored. The pumping station at Smethwick is to be upgraded to become a visitor attraction, linked to the existing visitor centre. The boatyard formerly operated by local character Caggy Stevens at Tipton is also to be renovated. Matching funding for the project is to be provided by the local authority, European funds and British Waterways.



The Northwich *Guardian*, 8 April, showed a photograph of the interior of the Islington Tunnel on the Regent's Canal in North London, as it is being reopened after extensive refurbishment. Built in 1820 this Grade II listed structure has received £400,000 work by Barhale Construction, who have lined it with new bricks matched in colour to the originals, rather than it should receive the standard repair treatment of sprayed concrete. This is part of British Waterways repair budget.

ANDERTON BOAT LIFT APPEAL

compiled by The Editor



Photograph by R Cragg, October 1996

Appeal is being made to contribute towards the sum of £250,000 which is the estimated amount required to complete the restoration of the Anderton Boat Lift (HEW 1129) to working order.

Opened in 1875, the lift conveyed traffic between the Trent and Mersey Canal and the River Weaver, fifty feet below. When originally designed by Edward Leader-Williams and Edwin Clark it was operated by hydraulic rams, but in the early 1900s it was modified to a counterbalanced structure driven by electric motors. By the 1980s it had become unsafe and derelict. For further information about the means by which support can be given please contact:

Anderton Boat Lift Appeal, FREEPOST ANG9209,
Northwich, CW8 1AZ or Appeal Hotline: 01923
201383 or Email:
rosslyn.colderley@thewaterwaystrust.co.uk